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Diagnosis of adrenal insufficiency in eosinophilic esophagitis: The importance of timing of cortisol measurements in interpreting low-dose adrenocorticotropic hormone stimulation testing

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To the Editor

Golekoh et al[1] reported adrenal insufficiency (AI) in 10% of children with eosinophilic esophagitis treated with swallowed glucocorticoids for ≥6 months and suggest screening this population with low-dose adrenocorticotropic hormone stimulation testing (LDST). Although this report provides important information on an at-risk population, we have concerns with the way the LDST was performed and thus question the rate of AI reported. Cortisol was measured only once after administration of synthetic adrenocorticotropic hormone at 20 minutes.

Peak cortisol tends to be earlier with LDST (1 μg) compared with high-dose (250 μg) stimulation testing, with the greatest mean cortisol concentrations occurring at 30 minutes.[2,3] Additional studies have shown that the peak cortisol concentration during LDST may occur at 30 minutes, 35 minutes, 40 minutes, or even up to 60 minutes.[4–6] Cartaya and Misra[6] retrospectively examined the results of LDST in 82 pediatric patients and found that 54% attained a peak cortisol at 60 minutes. Importantly, 11 patients who did not pass at 30 minutes did so at 60 minutes. In addition, children who were normal weight or underweight tended to peak at 60 minutes ($P = .01$), and in the study by Golekoh et al,[1] patients with abnormal responses to LDST had significantly lower body mass index z scores compared with those with a normal response. Therefore, because cortisol values were not measured at later time points, children in the study by Golekoh et al[1] may have been misclassified as having AI.

The timing of cortisol sampling is important to correctly interpret a LDST. Assessment with just a 20-minute cortisol value can result in over diagnosis of AI and an increased number of false positives, leading to unnecessary treatment with maintenance or stress glucocorticoids and potentially lead to unwanted side effects.

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